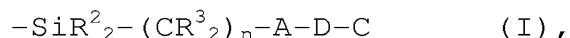


Claims

1. A curable composition **Z** comprising a binder **BM** that carries at least one ethylenically unsaturated group and also 5 particles **P** which possess at least one ethylenically unsaturated group on their surface and contain radicals of the general formula I,



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where

R² is $-(\text{CR}^3_2)_n-\text{A}-\text{D}-\text{C}$ or a hydrocarbon radical having 1 to 12 carbon atoms, whose carbon chain can be interrupted by nonadjacent oxygen, sulfur or NR⁴ groups,
15 **R**³ is hydrogen or hydrocarbon radical having 1 to 12 carbon atoms, whose carbon chain can be interrupted by nonadjacent oxygen, sulfur or NR⁴ groups,
R⁴ is hydrogen or hydrocarbon radical having 1 to 12 carbon atoms,
20 **A** is oxygen, sulfur, =NR⁴ or =N-(D-C),
D is carbonyl group, alkylene, cycloalkylene or arylene radical having in each case 1 to 12 carbon atoms, it being possible for the carbon chain to be interrupted by nonadjacent oxygen, sulfur or NR⁴ groups,
25 **C** is an ethylenically unsaturated group and
n is greater than or equal to 1.

2. A composition **Z** of claim 1, wherein the particles **P** are preparable by reacting
30 (a) particles **P1** of a material selected from metal oxides, metal-silicon mixed oxides, silicon dioxide, colloidal silicon dioxide and organopolysiloxane resins and combinations thereof, and possessing functions selected

from Me-OH, Si-OH, Me-O-Me, Me-O-Si, Si-O-Si, Me-OR¹ and Si-OR¹,

(b) with organosilanes **B** of the general formula II,

$$5 \quad (\text{R}^1\text{O})\text{R}^2_2\text{Si-}(\text{CR}^3_2)_n\text{-A-D-C} \quad (\text{II}),$$

and/or their hydrolysis and/or condensation products,

(c) and optionally with water,

10 where

R¹ is hydrogen or hydrocarbon radical having 1 to 6 carbon atoms, whose carbon chain can be interrupted by nonadjacent oxygen, sulfur or NR⁴ groups,

Me is a metal atom and

15 \mathbf{R}^2 , \mathbf{R}^3 , \mathbf{A} , \mathbf{D} , \mathbf{C} and \mathbf{n} are as defined for claim 1.

3. A composition **Z** of claim 1, wherein the particles **P** are preparable by cohydrolyzing organosilanes **B** of the general formula II with alkoxysilanes **B*** of the general formula III

$$(B^5\Omega)_{\perp} \approx (B^6)_{\perp} \text{ Si} \quad (111)$$

where

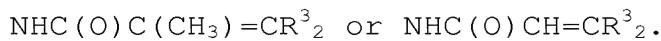
25 \mathbf{B}^5 has the definitions of \mathbf{B}^1 .

R⁶ is hydrocarbon radical which can be substituted, and

m denotes the values 0, 1, 2 or 3.

4. A composition **z** of claim 2 and 3, wherein the hydrocarbon
30 radical **R**¹ is a methyl, ethyl or phenyl radical.

5. A composition **z** of claim 1 to 4, wherein the groups $(-A-D-C)$ are the radicals $OC(O)C(CH_3)=CR^3_2$, $OC(O)CH=CR^3_2$,



6. A composition **Z** of claim 1 to 5, wherein the ethylenically unsaturated groups in the binder **BM** are capable of free-radical, cationic or anionic polymerization.

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7. A composition **Z** of claim 1 to 6, wherein the ethylenically unsaturated groups in the binder **BM** can be polymerized by actinic radiation or thermal treatment.

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8. A composition **Z** of claim 1 to 7, wherein the ethylenically unsaturated groups in the binder **BM** are selected from vinyl groups, methacrylate groups, acrylate groups and acrylamide groups.

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9. A composition **Z** of claim 1 to 8, wherein the particles **P1** possess an average diameter of less than 1000 nm, the particle size being determined by transmission electron microscopy.

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10. The use of a composition **Z** of claim 1 to 9 for coating substrates.